

# SEQUENCE LISTING

<110> Malik, Fady  
Beraud, Christophe  
Freedman, Richard  
Craven, Andrew  
Sakowicz, Roman  
Hartman, James

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 Pro Pro Lys Phe Ser Lys Val Glu Asp Met Ala Glu Leu Thr Cys Leu  
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 Leu Ile Tyr Thr Tyr Ser Gly Leu Phe Cys Val Val Val Asn Pro Tyr  
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Asn Gly Lys Lys Val Thr Val Gly Lys Asp Asp Ile Gln Lys Met Asn

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Pro Pro Lys Phe Ser Lys Val Glu Asp Met Ala Glu Leu Thr Cys Leu

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           675            680            685  
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 Gln Leu Arg Cys Asn Gly Val Leu Glu Gly Ile Arg Ile Cys Arg Gln  
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 Gly Phe Pro Asn Arg Ile Val Phe Gln Glu Phe Arg Gln Arg Tyr Glu  
           725            730            735  
 Ile Leu Ala Ala Asn Ala Ile Pro Lys Gly Phe Met Asp Gly Lys Gln  
           740            745            750  
 Ala Cys Ile Leu Met Ile Lys Ala Leu Glu Leu Asp Pro Asn Leu Tyr  
           755            760            765  
 Arg Ile Gly Gln Ser Lys Ile Phe Phe Arg Thr Gly Val Leu Ala His  
 770            775            780  
 Leu Glu Glu Glu Arg Asp Leu Lys Ile Thr Asp Val Ile Met Ala Phe  
 785            790            795            800  
 Gln Ala Met Cys Arg Gly Tyr Leu Ala Arg Lys Ala Phe Ala Lys Arg  
           805            810            815  
 Gln Gln Gln Leu Thr Ala Met Lys Val Ile Gln Arg Asn Cys Ala Ala  
           820            825            830  
 Tyr Leu Lys Leu Arg Asn Trp Gln Trp Trp Arg Leu Phe Thr Lys Val  
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 gagctggtg agaatggcaa gaagtcacg gttgggaaag atgacatcca gaagatgaac 240  
 ccaccaagt tctcaagggt ggaggacatg gcggagctga cgtgcctcaa cgaagcctcc 300  
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 tcccacaagg gcaagaaaga cacaagtatc acgcaaggcc catcttttgc ctacggagag 660  
 ctggaaaagc agcttctaca agcaaaccg attctggagg ctctcgcaa cgccaaaaca 720  
 gtgaagaacg acaactctc acgattcggc aaatcatcc gcataactt cgacgtcacg 780  
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 aagatgagaa gtgacttctt ttggagggc tcaacaact acaccttct ctccaatggc 960  
 ttgtgcca tccagcagc ccaggatgat gagatgtcc aggaaccgt ggaggccatg 1020  
 gcaatcatgg gttcagcga ggaggagcag ctatccatat tgaagggtg atcatcggtc 1080  
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<400> 12

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Lys Arg Leu Val Trp Val Pro Ser Glu Lys Gln Gly Phe Glu Ala Ala

35 40 45

Ser Ile Lys Glu Glu Lys Gly Asp Glu Val Val Val Glu Leu Val Glu

50 55 60

Asn Gly Lys Lys Val Thr Val Gly Lys Asp Asp Ile Gln Lys Met Asn

65 70 75 80

Pro Pro Lys Phe Ser Lys Val Glu Asp Met Ala Glu Leu Thr Cys Leu

85 90 95  
 Asn Glu Ala Ser Val Leu His Asn Leu Arg Glu Arg Tyr Phe Ser Gly  
 100 105 110  
 Leu Ile Tyr Thr Tyr Ser Gly Leu Phe Cys Val Val Val Asn Pro Tyr  
 115 120 125  
 Lys His Leu Pro Ile Tyr Ser Glu Lys Ile Val Asp Met Tyr Lys Gly  
 130 135 140  
 Lys Lys Arg His Glu Met Pro Pro His Ile Tyr Ala Ile Ala Asp Thr  
 145 150 155 160  
 Ala Tyr Arg Ser Met Leu Gln Asp Arg Glu Asp Gln Ser Ile Leu Cys  
 165 170 175  
 Thr Gly Glu Ser Gly Ala Gly Lys Thr Glu Asn Thr Lys Lys Val Ile  
 180 185 190  
 Gln Tyr Leu Ala Val Val Ala Ser Ser His Lys Gly Lys Lys Asp Thr  
 195 200 205  
 Ser Ile Thr Gln Gly Pro Ser Phe Ala Tyr Gly Glu Leu Glu Lys Gln  
 210 215 220  
 Leu Leu Gln Ala Asn Pro Ile Leu Glu Ala Phe Gly Asn Ala Lys Thr  
 225 230 235 240  
 Val Lys Asn Asp Asn Ser Ser Arg Phe Gly Lys Phe Ile Arg Ile Asn  
 245 250 255  
 Phe Asp Val Thr Gly Tyr Ile Val Gly Ala Asn Ile Glu Thr Tyr Leu  
 260 265 270  
 Leu Glu Lys Ser Arg Ala Ile Arg Gln Ala Arg Asp Glu Arg Thr Phe  
 275 280 285  
 His Ile Phe Tyr Tyr Met Ile Ala Gly Ala Lys Glu Lys Met Arg Ser  
 290 295 300  
 Asp Leu Leu Leu Glu Gly Phe Asn Asn Tyr Thr Phe Leu Ser Asn Gly  
 305 310 315 320  
 Phe Val Pro Ile Pro Ala Ala Gln Asp Asp Glu Met Phe Gln Glu Thr  
 325 330 335  
 Val Glu Ala Met Ala Ile Met Gly Phe Ser Glu Glu Glu Gln Leu Ser  
 340 345 350  
 Ile Leu Lys Val Val Ser Ser Val Leu Gln Leu Gly Asn Ile Val Phe  
 355 360 365  
 Lys Lys Glu Arg Asn Thr Asp Gln Ala Ser Met Pro Asp Asn Thr Ala  
 370 375 380  
 Ala Gln Lys Val Cys His Leu Met Gly Ile Asn Val Thr Asp Phe Thr  
 385 390 395 400  
 Arg Ser Ile Leu Thr Pro Arg Ile Lys Val Gly Arg Asp Val Val Gln  
 405 410 415  
 Lys Ala Gln Thr Lys Glu Gln Ala Asp Phe Ala Val Glu Ala Leu Ala  
 420 425 430  
 Lys Ala Thr Tyr Glu Arg Leu Phe Arg Trp Ile Leu Thr Arg Val Asn  
 435 440 445  
 Lys Ala Leu Asp Lys Thr His Arg Gln Gly Ala Ser Phe Leu Gly Ile  
 450 455 460  
 Leu Asp Ile Ala Gly Phe Glu Ile Phe Glu Val Asn Ser Phe Glu Gln  
 465 470 475 480  
 Leu Cys Ile Asn Tyr Thr Asn Glu Lys Leu Gln Gln Leu Phe Asn His  
 485 490 495  
 Thr Met Phe Ile Leu Glu Gln Glu Glu Tyr Gln Arg Glu Gly Ile Glu  
 500 505 510  
 Trp Asn Phe Ile Asp Phe Gly Leu Asp Leu Gln Pro Cys Ile Glu Leu  
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Ile Glu Arg Pro Asn Asn Pro Pro Gly Val Leu Ala Leu Leu Asp Glu  
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 Glu Cys Trp Phe Pro Lys Ala Thr Asp Lys Ser Phe Val Glu Lys Leu  
 545 550 555 560  
 Cys Thr Glu Gln Gly Ser His Pro Lys Phe Gln Lys Pro Lys Gln Leu  
 565 570 575  
 Lys Asp Lys Thr Glu Phe Ser Ile Ile His Tyr Ala Gly Lys Val Asp  
 580 585 590  
 Tyr Asn Ala Ser Ala Trp Leu Thr Lys Asn Met Asp Pro Leu Asn Asp  
 595 600 605  
 Asn Val Thr Ser Leu Leu Asn Ala Ser Ser Asp Lys Phe Val Ala Asp  
 610 615 620  
 Leu Trp Lys Asp Val Asp Arg Ile Val Gly Leu Asp Gln Met Ala Lys  
 625 630 635 640  
 Met Thr Glu Ser Ser Leu Pro Ser Ala Ser Lys Thr Lys Lys Gly Met  
 645 650 655  
 Phe Arg Thr Val Gly Gln Leu Tyr Lys Glu Gln Leu Gly Lys Leu Met  
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 Thr Thr Leu Arg Asn Thr Thr Pro Asn Phe Val Arg Cys Ile Ile Pro  
 675 680 685  
 Asn His Glu Lys Arg Ser Gly Lys Leu Asp Ala Phe Leu Val Leu Glu  
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 Gln Leu Arg Cys Asn Gly Val Leu Glu Gly Ile Arg Ile Cys Arg Gln  
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 Gly Phe Pro Asn Arg Ile Val Phe Gln Glu Phe Arg Gln Arg Tyr Glu  
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 Ile Leu Ala Ala Asn Ala Ile Pro Lys Gly Phe Met Asp Gly Lys Gln  
 740 745 750  
 Ala Cys Ile Leu Met Ile Lys Ala Leu Glu Leu Asp Pro Asn Leu Tyr  
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 Arg Ile Gly Gln Ser Lys Ile Phe Phe Arg Thr Gly Val Leu Ala His  
 770 775 780  
 Leu Glu Glu Glu Arg Asp Leu Lys Ile Thr Asp Val Ile Met Ala Phe  
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 Gln Ala Met Cys Arg Gly Tyr Leu Ala Arg Lys Ala Phe Ala Lys Arg  
 805 810 815  
 Gln Gln Gln Leu Thr Ala Met Lys Val Ile Gln Arg Asn Cys Ala Ala  
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<400> 14

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35 40 45

Ser Ile Lys Glu Lys Lys Gly Asp Glu Val Val Val Glu Leu Val Glu

50 55 60

Asn Gly Lys Lys Val Thr Val Gly Lys Asp Asp Ile Gln Lys Met Asn

65 70 75 80

Pro Pro Lys Phe Ser Lys Val Glu Asp Met Ala Glu Leu Thr Cys Leu  
 85 90 95  
 Asn Glu Ala Ser Val Leu His Asn Leu Arg Glu Arg Tyr Phe Ser Gly  
 100 105 110  
 Leu Ile Tyr Thr Tyr Ser Gly Leu Phe Cys Val Val Val Asn Pro Tyr  
 115 120 125  
 Lys His Leu Pro Ile Tyr Ser Glu Lys Ile Val Asp Met Tyr Lys Gly  
 130 135 140  
 Lys Lys Arg His Glu Met Pro Pro His Ile Tyr Ala Ile Ala Asp Thr  
 145 150 155 160  
 Ala Tyr Arg Ser Met Leu Gln Asp Arg Glu Asp Gln Ser Ile Leu Cys  
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 Thr Gly Glu Ser Gly Ala Gly Lys Thr Glu Asn Thr Lys Lys Val Ile  
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 Gln Tyr Leu Ala Val Val Ala Ser Ser His Lys Gly Lys Lys Asp Thr  
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 Ser Ile Thr Gly Glu Leu Glu Lys Gln Leu Leu Gln Ala Asn Pro Ile  
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 Leu Glu Ala Phe Gly Asn Ala Lys Thr Val Lys Asn Asp Asn Ser Ser  
 225 230 235 240  
 Arg Phe Gly Lys Phe Ile Arg Ile Asn Phe Asp Val Thr Gly Tyr Ile  
 245 250 255  
 Val Gly Ala Asn Ile Glu Thr Tyr Leu Leu Glu Lys Ser Arg Ala Ile  
 260 265 270  
 Arg Gln Ala Arg Asp Glu Arg Thr Phe His Ile Phe Tyr Tyr Met Ile  
 275 280 285  
 Ala Gly Ala Lys Glu Lys Met Arg Ser Asp Leu Leu Leu Glu Gly Phe  
 290 295 300  
 Asn Asn Tyr Thr Phe Leu Ser Asn Gly Phe Val Pro Ile Pro Ala Ala  
 305 310 315 320  
 Gln Asp Asp Glu Met Phe Gln Glu Thr Val Glu Ala Met Ala Ile Met  
 325 330 335  
 Gly Phe Ser Glu Glu Glu Gln Leu Ser Ile Leu Lys Val Val Ser Ser  
 340 345 350  
 Val Leu Gln Leu Gly Asn Ile Val Phe Lys Lys Glu Arg Asn Thr Asp  
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 Gln Ala Ser Met Pro Asp Asn Thr Ala Ala Gln Lys Val Cys His Leu  
 370 375 380  
 Met Gly Ile Asn Val Thr Asp Phe Thr Arg Ser Ile Leu Thr Pro Arg  
 385 390 395 400  
 Ile Lys Val Gly Arg Asp Val Val Gln Lys Ala Gln Thr Lys Glu Gln  
 405 410 415  
 Ala Asp Phe Ala Val Glu Ala Leu Ala Lys Ala Thr Tyr Glu Arg Leu  
 420 425 430  
 Phe Arg Trp Ile Leu Thr Arg Val Asn Lys Ala Leu Asp Lys Thr His  
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 Arg Gln Gly Ala Ser Phe Leu Gly Ile Leu Asp Ile Ala Gly Phe Glu  
 450 455 460  
 Ile Phe Glu Val Asn Ser Phe Glu Gln Leu Cys Ile Asn Tyr Thr Asn  
 465 470 475 480  
 Glu Lys Leu Gln Gln Leu Phe Asn His Thr Met Phe Ile Leu Glu Gln  
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 Glu Glu Tyr Gln Arg Glu Gly Ile Glu Trp Asn Phe Ile Asp Phe Gly  
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 Thr Asp Lys Ser Phe Val Glu Lys Leu Cys Thr Glu Gln Gly Ser His  
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 Pro Lys Phe Gln Lys Pro Lys Gln Leu Lys Asp Lys Thr Glu Phe Ser  
 565            570            575  
 Ile Ile His Tyr Ala Gly Lys Val Asp Tyr Asn Ala Ser Ala Trp Leu  
 580            585            590  
 Thr Lys Asn Met Asp Pro Leu Asn Asp Asn Val Thr Ser Leu Leu Asn  
 595            600            605  
 Ala Ser Ser Asp Lys Phe Val Ala Asp Leu Trp Lys Asp Val Asp Arg  
 610            615            620  
 Ile Val Gly Leu Asp Gln Met Ala Lys Met Thr Glu Ser Ser Leu Pro  
 625            630            635            640  
 Ser Ala Ser Lys Thr Lys Lys Gly Met Phe Arg Thr Val Gly Gln Leu  
 645            650            655  
 Tyr Lys Glu Gln Leu Gly Lys Leu Met Thr Thr Leu Arg Asn Thr Thr  
 660            665            670  
 Pro Asn Phe Val Arg Cys Ile Ile Pro Asn His Glu Lys Arg Ser Gly  
 675            680            685  
 Lys Leu Asp Ala Phe Leu Val Leu Glu Gln Leu Arg Cys Asn Gly Val  
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 Leu Glu Gly Ile Arg Ile Cys Arg Gln Gly Phe Pro Asn Arg Ile Val  
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 Phe Gln Glu Phe Arg Gln Arg Tyr Glu Ile Leu Ala Ala Asn Ala Ile  
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 Pro Lys Gly Phe Met Asp Gly Lys Lys Gln Ala Cys Ile Leu Met Ile Lys  
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 785            790            795            800  
 Leu Ala Arg Lys Ala Phe Ala Lys Arg Gln Gln Gln Leu Thr Ala Met  
 805            810            815  
 Lys Val Ile Gln Arg Asn Cys Ala Ala Tyr Leu Lys Leu Arg Asn Trp  
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21

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